

**Develop a lexical Analyzer to test whether a given identifier is valid or not using C.**

```
#include <stdio.h>

#include <string.h>

#include <ctype.h>


// List of C keywords
const char *keywords[] = {

    "int", "float", "char", "if", "else", "while", "for", "return",

    "void", "do", "switch", "case", "break", "continue", "static",

    "struct", "typedef", "union", "const", "enum", "extern", "goto",

    "long", "register", "short", "signed", "sizeof", "unsigned", "volatile"

};


// Function to check if a word is a C keyword
int isKeyword(char *word) {

    int numKeywords = sizeof(keywords) / sizeof(keywords[0]);

    for (int i = 0; i < numKeywords; i++) {

        if (strcmp(word, keywords[i]) == 0) {

            return 1; // It is a keyword

        }

    }

    return 0; // Not a keyword

}


// Function to check if the given string is a valid identifier
int isValidIdentifier(char *word) {

    // Check if first character is valid

    if (!isalpha(word[0]) && word[0] != '_') {

        return 0; // Invalid if not a letter or underscore

    }

}
```

```

// Check remaining characters
for (int i = 1; i < strlen(word); i++) {
    if (!isalnum(word[i]) && word[i] != '_' ) {
        return 0; // Invalid if it contains special characters
    }
}

// Check if it is a keyword
if (isKeyword(word)) {
    return 0; // Keywords are not valid identifiers
}

return 1; // It is a valid identifier
}

// Main function to test the identifier
int main() {
    char identifier[50];

    printf("Enter an identifier: ");
    scanf("%s", identifier);

    if (isValidIdentifier(identifier)) {
        printf("Valid Identifier: %s\n", identifier);
    } else {
        printf("Invalid Identifier: %s\n", identifier);
    }

    return 0;
}

```

Input:

my\_variable

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\vallu> & 'c:\Users\vallu\.vscode\extensions\ms-vscode.cpptools-1.22.11-win32-x64\debugAdapters\bin\windowsDebugLauncher.exe' '--stdin-Microsoft-MIEngine-In-1gpx1ea3.bkk' '--stdout-Microsoft-MIEngine-Out-413pmyjo.0xy' '--stderr-Microsoft-MIEngine-Error-ji4pnoap.yor' '--pid-Microsoft-MIEngine-Pid-0aikzqm.1zb' '--dbgExe=C:\msys64\ucrt64\bin\gdb.exe' '--interpreter=mi'
Enter an identifier: my_variable
Valid Identifier: my_variable
PS C:\Users\vallu> ^C
PS C:\Users\vallu>
PS C:\Users\vallu> & 'c:\Users\vallu\.vscode\extensions\ms-vscode.cpptools-1.22.11-win32-x64\debugAdapters\bin\windowsDebugLauncher.exe' '--stdin-Microsoft-MIEngine-In-2f2k3vaq.2tf' '--stdout-Microsoft-MIEngine-Out-zqcbdzqm.g1f' '--stderr-Microsoft-MIEngine-Error-yvdu5dx.ajg' '--pid-Microsoft-MIEngine-Pid-hp4q43x4.1jb' '--dbgExe=C:\msys64\ucrt64\bin\gdb.exe' '--interpreter=mi'
Enter an identifier: 1abc
Invalid Identifier: 1abc
PS C:\Users\vallu> █
```